FENOC
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Beaver Valley Power Station
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January 4, 2018
L-17-374

10 CFR 50.73

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT:
Beaver Valley Power Station, Unit No. 1
BV-1 Docket No. 50-334, License No. DPR-66
LER 2017-003-00

Enclosed is Licensee Event Report (LER) 2017-003-00, "Beaver Valley Power Station Unit 1 Reactor Trip due to Turbine Trip and Automatic Initiation of Auxiliary Feedwater System". This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A), 10 CFR 50.73(a)(2)(iv)(B)(1), and 10 CFR 50.73(a)(2)(iv)(B)(6).

There are no regulatory commitments contained in this submittal. Any actions discussed in this document that represent intended or planned actions are described for the NRC's information, and are not regulatory commitments.

If there are any questions or if additional information is required, please contact Mr. Brian D. Kremer, Manager, Regulatory Compliance at 724-682-4284.

Sincerely,

Richard D. Bologna

Enclosure – Unit 1 LER 2017-003-00

cc: Mr. D. C. Lew, Acting NRC Region I Administrator
Mr. J. A. Krafty, NRC Senior Resident Inspector
Ms. S. Haney, Acting NRC Senior Resident Inspector
Ms. B. Venkataraman, NRR Project Manager
INPO Records Center (via INPO Consolidated Event System)
Mr. L. Winker (BRP/DEP)

IE22
NRR

NRC FORM 366 (04-2017) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 03/31/2020

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Beaver Valley Power Station Unit Number 1	05000 334	1 OF 3

4. TITLE

Beaver Valley Power Station Unit 1 Reactor Trip due to Turbine Trip and Automatic Initiation of the Auxiliary Feedwater System

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									None	05000
11	07	2017	2017	003	00	01	04	2018	FACILITY NAME: None	DOCKET NUMBER: 05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*			
1	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☑ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
100	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER *(Include Area Code)*
Brian D. Kremer, Manager, Regulatory Compliance	(724) 682-4284

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☑ NO				

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On November 7, 2017 at 05:04 EST Beaver Valley Power Station (BVPS) Unit 1 experienced an automatic Reactor Trip from 100 percent power due to an automatic Turbine Trip. The Turbine Trip was initiated by a Main Unit Generator Overcurrent Protection Trip. The Reactor Trip was without complications. All control rods fully inserted into the core. The Auxiliary Feedwater System automatically actuated as expected and performed as designed. The plant was stabilized in Mode 3 with the normal Main Feedwater System in service and the Auxiliary Feedwater System properly secured.

The Main Unit Generator trip was caused by foreign material in the isophase bus duct. The isophase bus ducts have been properly inspected and cleared of all foreign material.

This event was reported (EN 53056) as an actuation of the Reactor Protection system 10 CFR 50.72(b)(2)(iv)(B) and a Specified System Actuation (Auxiliary Feedwater System) 10 CFR 50.72(b)(3)(iv)(A).

This event is being reported pursuant to 10 CFR 50.73(a)(2)(iv)(A) as a condition that resulted in the automatic actuation of the Reactor Protection System (RPS) and the expected automatic actuation of the Auxiliary Feedwater System.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME	2. DOCKET NUMBER		3. LER NUMBER		
			YEAR	SEQUENTIAL NUMBER	REV NO.
Beaver Valley Power Station Unit Number 1	05000-	334	2017	- 003	- 00

NARRATIVE

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Energy Industry Identification System (EIIS) codes identified in the text as [XX].

CONDITIONS PRIOR TO OCCURENCE

Beaver Valley Power Station Unit 1 (BV-1) was in Mode 1 at 100% Power

There were no Structures, Systems, or Components (SSCs) that were inoperable at the start of the event that contributed to the event.

DESCRIPTION OF EVENT

On November 7, 2017, at 05:04 EST, BV-1 experienced an automatic Reactor Trip due to an automatic Turbine [TRB] Trip initiated by a Main Unit Generator [MG] over-current protection [51] relay [RLY] actuation. The reactor trip was without complications, with safety related equipment performing their required functions to place and maintain the plant in Mode 3. All control rods [AA] fully inserted into the reactor core. The Auxiliary Feedwater System [BA] automatically actuated on low Steam Generator [SG] Water Level as expected, and performed as designed. The plant was stabilized in Mode 3 with the normal Main Feedwater System [SJ] in service and the Auxiliary Feedwater System properly secured. Post trip response addressed an issue with both source range detectors [JI] which had no impact on maintaining the plant in Mode 3.

CAUSE OF EVENT

The Direct Technical Cause of this event was conductive foreign material in the isophase bus duct. The foreign material was found during an inspection of the Main Unit Generator Isophase Bus [BU] Duct Cooling System. The foreign material caused an electrical ground fault which led to the generator protection trip and subsequent turbine trip and reactor trip. High Potential (Hi-Pot) testing was performed on all three phases of the bus, confirming that the "B" phase was faulted.

In 2013, a full bus duct inspection was to be completed but the scope was changed and only a partial bus duct inspection was performed. The Root Cause was determined to be, "individuals made decisions in 2013 that allowed personnel to change the work scope, without following the process to get approval for the change in work scope".

The contributing cause was that the procedure to perform the bus duct inspections was unclear as to what constituted a "full" inspection and if such a "full" inspection was required. The lack of clarity in the procedure created a "weak barrier" and contributed to confusion on the part of the workers.

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NARRATIVE

ANALYSIS OF EVENT

The plant risk associated with the BVPS Unit 1 reactor trip and automatic auxiliary feedwater actuation due to a turbine trip on November 7, 2017 is considered to be very low. This is based on the change in average core damage frequency derived using conditional large early release probability for this event.

This event is being reported pursuant to 10 CFR 50.73(a)(2)(iv)(A) as a condition that resulted in the automatic actuation of the Reactor Protection System (RPS) and the expected automatic actuation of the Auxiliary Feedwater System.

CORRECTIVE ACTIONS

1. The BVPS Unit 1 isophase bus ducts have been properly inspected and cleared of all foreign material. (Complete)

2. In order to preclude recurrence, the inspection procedure is being revised to clearly state the requirement to perform a full isophase bus duct inspection.

Completion of item 2 listed above is being tracked in the Corrective Action Program.

PREVIOUS SIMILAR EVENTS

A review of the previous three years identified the following similar event:

BV-1 LER 2014-001-01 "Beaver Valley Unit 1 Trip due to Main Unit Transformer Failure".

CR 2017-11134, 11215